

Deciphering Weak Decays of Doubly and Triply Heavy Baryons by SU(3) Analysis

Baryons with three heavy quarks are the last missing pieces of the lowest-lying baryon multiplets in the quark model after the discovery of doubly heavy baryons. In this work, we study nonleptonic weak decays of triply heavy baryons $\Omega^{++}\{ccc\}$, $\Omega^{-}\{bbb\}$, $\Omega^{+}\{ccb\}$, and $\Omega^{0}\{cbb\}$. Decay amplitudes for various processes have been parametrized in terms of the SU(3) irreducible nonperturbative amplitudes. A number of relations for the partial decay widths can be deduced from these results that can be examined in future. Some decay channels and cascade decay modes which likely to be used to reconstruct the triply heavy baryons have been also listed.

Presentation type

Poster

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